bSI openBIM Awards 2021: Submission Guide

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WELCOME

Hi! My name is Susan Keenliside and it’s my privilege to bring you the bSI openBIM Awards Program. This submission guide has all the information you need to prepare for and execute a submission to the Awards program for 2021. This year we have brought improvements to the technical criteria as well as customized forms for each category. The user experience for submitters and jury members remains in the AwardForce platform, which helps everyone focus on what’s important here – great news stories about the use of openBIM! On behalf of the entire team, I welcome you to the 2021 season and wish you the best of luck with your submission(s).

Sincerely,

OBJECTIVE

The buildingSMART International Awards Program honours exemplary demonstrations of openBIM best practice or innovation within project delivery and lifecycle asset management in the built asset industry. Entries are judged on how effectively, or how innovatively, they have used these to overcome interoperability challenges.

WEBSITE

https://www.buildingsmart.org/bsi-awards/

The bSI website for the Awards Program is the homepage for all awards information, including access to the awards platform for submissions and judging. You can also review past winners, finalists, and special mentions.

Finally, don’t miss reading Appendix A: Message to Applicants at the end of the document for more details about the program.
AWARD CATEGORIES

There are four (4) themes with a total of eight (8) categories to be awarded for the 2021 season:

- Project Delivery Excellence
  - Design
  - Construction
  - Handover
- Operational Excellence
  - Asset Management
- Research Excellence
  - Professional
  - Student
- Technology Excellence
  - Technology Solution

**NOTE: Professional Research = Academic, Institutional or Industry Research projects**

Refer to the website or Appendix B: Award Category Definitions for detailed definitions and expectations per category. If you are not sure which category your submission belongs, you can reach out to awards@buildingsmart.org to ask the question.

CORE REQUIREMENTS

Satisfying the following core requirements is necessary to advance to the judging round:

1. Entries must demonstrate with evidence the deployment of one or more buildingSMART tools or standards.
2. Entries must be delivered in International English; the jury will not be able to assess content written in a language other than International English.
3. One submission = one project
4. One project can submit for multiple awards if they meet the criteria. When submitting a project for multiple awards, it is expected that each submission be tailored to each category scope.
5. There is no limit to the number of submissions a proponent can submit.
6. Past submissions that did not win an award in previous seasons are able to resubmit to any new season. Past award winners are not eligible for resubmission in the same category but may submit to other categories.

SHARING & CONFIDENTIALITY AGREEMENTS

buildingSMART International reserves the right to promote the submissions within the community. For example, the awards program will make a Gallery view of the submissions available within the platform for any community member. The exception to this, and exclusion from the Gallery view, will be any model or other technical files submitted; these will not be shared with the broader community.

*Note: The Gallery views from 2020 are only of the Winners, Finalists and Special Mentions, which are accessible as links under each submission: [https://www.buildingsmart.org/bsi-awards-2020/winners/](https://www.buildingsmart.org/bsi-awards-2020/winners/)*
KEY DATES
*All dates referenced open until 23h59 in the last time zone available.

SUBMISSION PERIOD
- Submissions completed via Awards Platform
- https://awards.buildingsmart.org
  CLOSING DATE: May 23rd, 2021

JUDGING PERIOD
- Chapter Representatives form the Jury
- Judging of submissions to determine Finalists
  CLOSING DATE: July 31st, 2021

FINALISTS ROUND
- Online Presentations to a select Jury
- Marketing Material for Summit & Website
- Summit Invitation to Present Project
  NOTIFIED: August 25th, 2021

SUMMIT CEREMONY
- Category Winners are awarded at the Summit Gala Ceremony
  CEREMONY: Fall TBD, 2021

WHAT’S NEW IN 2021
- New category added: Facilities Management
  - This category is for owner/operators and facility management professionals
  - The addition of this category is the first of its kind in the program
- Tailored submission forms per parent category/theme
- Additional technical criteria for a strengthened view of the technical evidence to support the openBIM claims
- New optional fields to add strength to the submission:
  - Process Maps upload
  - IFC and other technical files upload
  - Data Metrics Summary upload
- Gallery views of all submissions to the bSI community
- Popular vote by the bSI community for their top 10 Finalists
AWARD FORCE PLATFORM
Award Force is a web-based awards platform used by buildingSMART International and does not incur any cost to the applicant for its use. It requires a log-in profile that is created prior to entering the site; be sure to take note of your login credentials to use every time you log in to the platform. You can save your submission and return to it as much as you need. The submission is not submitted until you complete all the required fields and click the submit button.

https://awards.buildingsmart.org

TAILORED CATEGORY APPROACH
Note that this year has a tailored approach to each parent category – depending on which category and subcategory you choose, you will notice some tabs are different.

Software Ecosystem
We want all software used on the project to be identified. Submitters may choose to create a graphic or process maps that demonstrate the software used, by which stakeholder, which IT infrastructure, in which project phase or information exchange or BIM use.

Refer to Appendix D: Sample Attachment Files to see an example of a software ecosystem map.

PROCESS MAPS
There is now an option for applicants to add process maps to their submission, in addition to what is provided as a Software Ecosystem Map. This field is optional.
MODELS FILES
It is highly encouraged, but optional, for applicants to submit IFC model files and other technical file formats to strengthen their submission. Screenshots, video screen captures, and other forms of documentation are also highly encouraged to show clear software workflows and model or data content. Model and other technical files will not be made available to the community without consent.

Contact awards@buildingsmart.org if your organization has secure information and handling requirements that need to be met.

USE CASES
We continue to encourage documentation of any BIM Use Case deployed on the project, although there is no requirement to complete a specific deliverable at this time.

For more information on the bSI UCM activity, visit https://www.buildingsmart.org/users/services/

https://ucm.buildingsmart.org

RESUBMISSION OF PAST PROJECTS
buildingSMART encourages the resubmission of projects to the awards program. In some cases, the past submission may not have fully demonstrated the accomplishments, or the project may have further advanced since the time of the last submission. PLEASE NOTE that previous winning projects are not eligible to resubmit to the same category they won an award for.

JURY PROCESS
buildingSMART is committed to a fair and transparent judging process. The Jury is selected on a volunteer basis from each of the buildingSMART chapters around the world. Each jury member attests to not being involved with any submission nor any of the projects being submitted. The jury is given the tools and background knowledge to be able to complete the judging activities fairly and consistently across all submissions. The jury will typically determine three (3) finalists for each award category.

FINALISTS & WINNERS
All finalists will be asked to provide additional material to be promoted by buildingSMART. This may include a poster, a short video, and a 20-minute presentation at the fall summit to determine the category winners. Winners will be announced at the Gala Dinner Awards Ceremony during the bSI Fall Summit.
GALA CEREMONY
The Gala Ceremony is the event where the buildingSMART openBIM Awards are announced. It occurs during the fall Standards Summit. It is a gala dinner for summit participants with the awards ceremony happening as the capstone entertainment and celebration. All submitters are invited to attend, regardless of final standing in the awards.

FREQUENTLY ASKED QUESTIONS
Submitters are encouraged to review the FAQ section of the website:
https://www.buildingsmart.org/bsi-awards/

OPT-IN TO BSI NEWS
Opt-in to the buildingSMART mailing list to receive all bSI news and regular communications:
https://mailchi.mp/56c7ea4b1b66/buildingsmart-opt-in-for-email-news

CONTACT
Submitters may contact awards@buildingsmart.org with questions or websupport@buildingsmart.org for technical issues at any time.
Appendix A: Message to Applicants

Thank you for your interest in submitting a project to the buildingSMART International (bSI) openBIM Awards. buildingSMART created the Award program to recognize exemplary projects that have used buildingSMART solutions to effectively overcome interoperability challenges. The first awards were presented in Toronto in October 2014.

“It’s an opportunity for companies to showcase their application of buildingSMART open standard solutions to current challenges of interoperability faced during collaborative project delivery or asset operations”.

Richard Petrie, Chief Executive

To ensure your project has the greatest chance of winning an award, read carefully as we provide you with instructions and information about the submittal process. It is important to follow these instructions to present your submission in the clearest way possible to the jury.

The submissions will be judged on how well the evidence demonstrates the use of openBIM on the project, with highest ratings going to projects showcasing the use of bSI Standards, Tools, and Services. The submitters are highly encouraged to provide technical evidence.

From experience, we have found the competition to be very intense. buildingSMART ensures a fair competition by combining rigor and transparency in the submittal process and enabling the jurors to give all parties equal consideration. To this end, the evidence given must follow the instructions and contain information that clearly demonstrates openBIM in the submission.

We recognize the time required to prepare a proper award submission, and our aim is to make the process as easy as possible. Concurrently, we respect the jury members’ time to thoroughly review each submission in a consistent method to make their best assessment. The more succinct and organized the evidence is in supporting the submission, the better the process is for everyone.

BEWARE: Copious, non-relevant, or insufficient information will be viewed as detrimental. The jury has a limited amount of time to review submissions. Ensure important information is explicit and not buried in large amounts of text. Do not duplicate text in multiple fields.

IMPORTANT REMINDER: All communications from buildingSMART International regarding your submission will be sent only to the contact person provided in your award application. If you need to change the contact, please send your request to awards@buildingsmartinternational.org.

Best of luck,
bSI Awards Management Team
## Appendix B: Award Category Definitions

<table>
<thead>
<tr>
<th>THEME</th>
<th>CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Project Delivery Excellence</strong></td>
<td>An industry project award recognizing excellence by any stakeholder in construction project delivery using openBIM.</td>
</tr>
<tr>
<td></td>
<td>Design using openBIM An industry construction project with demonstrated excellence using openBIM during the Design phase of project delivery.</td>
</tr>
<tr>
<td></td>
<td>Construction using openBIM An industry construction project with demonstrated excellence using openBIM during the Construction phase of project delivery.</td>
</tr>
<tr>
<td></td>
<td>Handover using openBIM An industry construction project with demonstrated excellence using openBIM for Handover of datasets and information during Project Close-out.</td>
</tr>
</tbody>
</table>

| Operational Excellence       | Operational excellence using openBIM by any stakeholder during the Operations phase of a built asset. |
|------------------------------| Asset lifecycle information management with demonstrated excellence using openBIM in the Operations phase of a built asset. |
|                              | Facilities Management using openBIM From real estate planning and space management to preventative maintenance, lifecycle replacement and emergency preparedness; the Operations Phase of a built asset has many data needs for openBIM. |

| Research Excellence          | A research project that advances the pursuit of interoperability using buildingSMART schema or tools. |
|------------------------------| Professional Research using openBIM Research excellence using openBIM led by academic, industry or government professionals. |
|                              | Student Research using openBIM Research excellence using openBIM led by students. |

| Technology Excellence        | Software development deploying buildingSMART schema, tools or standards. |
|------------------------------| Technology Solution using openBIM An applied technology solution developed on the back of buildingSMART schema. |
Appendix C: Submission View
Use this guide to walk you through what is required.

https://awards.buildingsmart.org

Log in Details
If you are new to this site, you must first Register to create an account, otherwise use the Log in section:

When registering for the first time, you will be asked (one time) for Additional Details:
Additional details

All questions must be answered, unless marked optional.

Role or Job Title on the Project
0 / 100 characters

Employer
0 / 250 characters

Employer Name
City, Country

Employer Role

- Public Sector Owner/Client
- Private Sector Owner/Client
- Architecture or Engineering Company
- Specification Writing or Quantity Surveying Company
- Design-Build Company
- Construction, Fabrication or Supply Chain Company
- Facilities or Asset Management Company
- Full Service Company (Design-Construct-Operate)
- Technology or Software Development Company
- Academic or Research Institution
- Other

Employer = who you work for

Are you or your employer a member of buildingSMART?

- No
- Yes - Chapter Member
- Yes - Sponsor Member (Standard, Multinational or Strategic)

Complete profile
Getting Started
Upon sign in, you’ll need to verify your account through the email address provided. Once completed, you’ll see two tabs on the left side of the screen: About & My submissions:

On the My submissions tab, you can Start a new submission:

When you start a new submission, be sure to read the information provided, including the Note to Submitters and the Core Requirements.

Next, pick the right category and subcategory to submit to. Note that the tabs for the submission will change according to the category selection:

Be sure to pick the right category for your submission; if you are not sure, send a note to awards@buildingsmart.org for clarification.

Next, give an appropriate Submission Name; this will be used to refer to your submission throughout the process.

Complete the rest of the Submission Details and be sure to click “Save” at the bottom of the screen.
Now that you have saved the information thus far, you can log out and log in as much as you like during the development of the submission. Be sure to always save your work before leaving the site. You can return to your submission at any time and make changes up until the deadline. There is no restriction on how many times you access and/or edit your submission(s) within the deadline. However, once the deadline is past, you will not be able to access your submission(s).

**FYI: YOU MUST CLICK “SUBMIT” BEFORE THE SUBMISSION DEADLINE TO ENTER THE COMPETITION.**

Submissions that are saved, but not officially submitted are considered “In Progress” and are not
counted as an official submission. **A submission cannot be submitted until all the required fields are completed.**

Once you have picked your category/subcategory and have completed the Submission Details tab, carry on with completing all the tabs in the template. These are captured below; be mindful of the tabs that apply to your category. You can use these screenshots to work on content outside of the platform or communicate with others about what information is required to complete the submission.

**Research Category Only**

<table>
<thead>
<tr>
<th>Tab</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Research Summary</strong></td>
<td>Respond to the research methodology and results achieved as they pertain to openBIM. It is important to see the dependence on, use or exploitation of openBIM to solve the research program. Keep in Mind: openBIM is not only about the use of solutions, openBIM is about setting up an environment where every party in a team can work in the optimal way (&quot;how they prefer&quot;) without putting limitations on others. It is about freedom to take control over your data and workflows, while keeping that freedom for others as well. Full use of open standards is not mandatory for this mission. Note: Use the Attachments Tab to upload attachments, such as images, screenshots, documents, and videos.</td>
</tr>
<tr>
<td><strong>Problem Statement</strong></td>
<td>What is the problem that the research is trying to solve? Describe the research challenges or questions in trying to solve the problem.</td>
</tr>
<tr>
<td><strong>Previous efforts and limitations</strong></td>
<td>Were there any previous efforts to solve the problem? What are the limitations of the previous studies?</td>
</tr>
<tr>
<td><strong>Research method</strong></td>
<td>How did the team solve the problem or find the answer to the problem?</td>
</tr>
</tbody>
</table>
Findings/Validation

0 / 1000 words:

What were the outcomes? How could the team tell that the proposed method was effective in solving the problem?

Conclusion/Contributions/Limitations

0 / 1000 words:

What are the contribution and limitations of the proposed method? What is the novel contribution? Why is it better than the existing solutions? How are they related to openBIM?

Project Delivery Category Only

Use this section to provide a high-level overview of the project context.

Keep in mind: openBIM is not only about the use of tools. openBIM is about setting up an environment where every party in a team can work in the optimal way (how they prefer) without putting limitations on others. It is about freedom to take control over your data and workflows, while keeping that freedom for others as well. Full use of open standards is not mandatory for this mission.

Note: Use the Attachments Tab to upload attachments such as images, screenshots, documents, and videos.

Project Type

- Residential
- Commercial
- Mixed-Use
- Institutional
- Industrial
- Civil
- Other

Commercial: Shopping Centres, Stores, Restaurants, etc.
Institutional: Hospitals, Schools, Laboratories, etc.
Industrial: Airports, Plants, etc.
Civil: Roads, Bridges, Tunnels, etc.

Size of Project:

Use any metrics that help determine size of project or give a sense of scale. Ex: Budget/Cost, square footage, or square meters, number of buildings, etc.

Project Objectives

0 / 1000 words:

Summarize the objectives of the project in 100 words or less. Provide a high-level overview that would be appropriate on a cover page or executive summary.
Project Description

TIP: You can write in Word and copy/paste to this field when ready.

Highlights

List a few important highlights achieved on this project. For example:
- Client mandated native file formats and IFC
- Over 1,305,000 IFC structural objects modeled
- Delivered on time and under budget

Strategic Alignment

Describe in 100 words or less how the openBIM goals helped achieve the project strategic objectives.

Information Requirements (optional)

Select file

openBIM Claim

This section should clearly demonstrate openBIM environment achievements on the project. Refer to the following sites for reference:
- www.buildingSMART.org
- www.openBIM.org

NOTE: openBIM is not only about the use of solutions; openBIM is about setting up an environment where every party in a team can work in the optimal way ("how they prefer") without putting limitations on others. It is about freedom to take control over your data and workflows, while keeping that freedom for others as well. Full use of open standards is not mandatory for this mission.

openBIM Used

- IFC 2x3
- IFC4
- BIMXML
- Revit
- XDD
- BCF
- IDM
- OGS
- isometric
- COBie

Choose all that apply.

Have you used bSDD to add additional extensions on top of IFC?

- Yes
- No

Provide supporting screenshots or documentation on the Evidence Tab.
Were there other regional or open standards used other than those listed above? (optional)

| B | I | H |   |   |   |   |   |

Was interoperability achieved in an open format by a standard or schema not identified in the openBIM list above?
Ex: OmniClass, UniClass, MasterFormat, Uniformat, CoCos, SFE, ETIM, etc.
Was this instrumental in the successful use of openBIM?

Detailed description of openBIM on the project

| B | I | H |   |   |   |   |   |

Describe all the technical elements of using openBIM on the project in enough detail to prove the achievement(s).

openBIM Achievements

| B | I | H |   |   |   |   |   |

Describe how the use of openBIM brought value to the project. Provide this as a high-level overview that would be appropriate on a cover page or executive summary.

Benefits from using openBIM

| B | I | H |   |   |   |   |   |

Describe what benefits were achieved using openBIM on this project. (Ex: Cost, Time, Client Satisfaction)

“We were able to innovate using openBIM.” (optional)

| B | I | H |   |   |   |   |   |

If this statement is true, describe what the innovation was and how this was achieved on the project. Definition: ‘Innovation’ refers to a new or novel method, idea, product, etc.

“We were able to identify where we need openBIM to develop further.” (optional)

| B | I | H |   |   |   |   |   |

Identify where you could have used more development of openBIM to bring greater benefit to the project.

Save + next  Save + close  Preview  Submit submission
Operations Category Only
Use this section to provide a high-level overview of the facility context. It is understood that within the operations phase of a facility, there are various options for making changes or bringing improvements, such as but not limited to incentives, proof of concepts, operational projects, programs of work, business case development, etc. Therefore, for the purposes of this submission, the term “project” is loosely used, but understood that there are various ways to frame this type of openBIM award submission and that you will choose the most appropriate terms and language accordingly.

Keep in mind: openBIM is not only about the use of solutions, openBIM is about setting up an environment where every party in a team can work in the optimal way (“how they prefer”) without putting limitations on others. It is about freedom to take control over your data and workflows, while keeping that freedom for others as well. Full use of open standards is not mandatory for this mission.

Note: Use the Attachments tab to upload attachments, such as images, screenshots, documents, and videos.

Facility Type
- Residential
- Commercial
- Mixed-Use
- Institutional
- Industrial
- Civil
- (Other)

Size of Facility
Use any metrics that help determine size of facility and/or size of project for this submission that gives a sense of scale. E.g. Budget/Cost, square footage or square meters, number of buildings, etc.

Strategic Objectives
Summarize the strategic objectives of the project in 100 words or less. Provide a high-level overview that would be appropriate on a cover page or executive summary.

Facility or Asset Project Description
Use this field to describe the focus area or scope of work of your submission.
TIP: You can write in Word and copy/paste to this field when ready.

Operational Highlights
List a few important highlights achieved on this project. For example:
- Client managed native file format and IFC
- Over 1,300,000 IFC objects modeled
- Resource savings or operational improvements
<table>
<thead>
<tr>
<th>Detailed description of openBIM on the project</th>
<th>0 / 300 words</th>
</tr>
</thead>
</table>
| Describe all the technical elements of using openBIM on the project in enough detail to prove the achievements.

<table>
<thead>
<tr>
<th>openBIM Achievements</th>
<th>0 / 300 words</th>
</tr>
</thead>
</table>
| Describe how the use of openBIM brought value to the project. Provide this as a high-level overview that would be appropriate on a cover page or executive summary.

<table>
<thead>
<tr>
<th>Benefits from using openBIM</th>
<th>0 / 300 words</th>
</tr>
</thead>
</table>
| Describe what benefits were achieved using openBIM on this project. (Ex: Cost, Time, Client Satisfaction)

<table>
<thead>
<tr>
<th>&quot;We were able to innovate using openBIM.&quot; (optional)</th>
<th>0 / 300 words</th>
</tr>
</thead>
</table>
| If this statement is true, describe what the innovation was and how this was achieved on the project. Definition: Innovation refers to a new or novel method, idea, product, etc.

<table>
<thead>
<tr>
<th>&quot;We were able to identify where we need openBIM to develop further.&quot; (optional)</th>
<th>0 / 300 words</th>
</tr>
</thead>
</table>
| Identify where you could have used more development of openBIM to bring greater benefit to the project.
# Technology Solution Category Only

<table>
<thead>
<tr>
<th>Technology Solution</th>
<th>0 / 500 words</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Technology Solution Description</strong></td>
<td>Provide a brief description of what the technology solution is and does. The jury wants to understand what your solution is about. Is it a new tool, or is it a new way of using an open standard? What is innovative about it?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>What underlying technology are you using for your solution?</th>
<th>0 / 500 words</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>What underlying technology are you using for your solution?</strong></td>
<td>Describe the backbone architecture. The jury wants to see an overview of how your solution works. How do the software components work together? What is the end-user experience like?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Similar or Comparable Solutions on the market today</th>
<th>0 / 500 words</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Similar or Comparable Solutions on the market today</strong></td>
<td>What solutions on the market are similar or comparable to yours? Explain to the jury why your tool is different from tools that seem to be doing the same thing. For example, your code compliance check is a completely new approach to back box versus white box testing. What is the difference?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Results in Practice</th>
<th>0 / 500 words</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Results in Practice</strong></td>
<td>Elaborate on the practical use and added value (in practice, daily projects) of your solution. Give some examples of how your system is in practice. Testimonials from users, or results from pilot testing. Anything to show that your promise is being delivered.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Example Use (optional)</th>
<th>Attach an example use of your solution in a real-world project.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Example Use (optional)</strong></td>
<td>Accessibility is about the speed of scaling up. When your solution is easily accessible to the market it can spread fast. Depending on your solution, it might be better to publish it as an online proprietary service, distribute it as open source, or offer it as an integrated approach with commercial paid services. Explain your situation and why you chose what you did.</td>
</tr>
<tr>
<td>Field</td>
<td>Word Limit</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>What added value does your solution give?</td>
<td>0 / 500</td>
</tr>
<tr>
<td>uploaded 2 minute video to show how your solution works.</td>
<td></td>
</tr>
<tr>
<td>What are next steps and future developments of your solution?</td>
<td>0 / 500</td>
</tr>
<tr>
<td>What is potentially possible in the future? (optional)</td>
<td>0 / 500</td>
</tr>
<tr>
<td>Make the case for why your solution should win.</td>
<td>0 / 500</td>
</tr>
</tbody>
</table>
### OpenBIM Evidence

This section should provide evidence to support the claims. Refer to the following site for reference:
- [bimtechnicallite](#)
- [ISO Certified Software List](#)

#### Software used

<table>
<thead>
<tr>
<th>B</th>
<th>I</th>
<th>H</th>
</tr>
</thead>
</table>

List all BIM-related software or platforms used on the project. (For example: ARCHICAD, LDM/modelServer, Grasshopper, MicroStation V8i, Navisworks, Revit, Rapid BIM, Reiser, Solibri Model Checker, StreamBIM, SYNCHRO PRO, Tekla BIMsight, Tekla Structures, Trimble Connect, Vectorworks)

#### Software Ecosystem Map

**Select file**

How were the tools connected?
- Provide a visual diagram of all the BIM software and openBIM information exchanges between the various project stakeholders.
- Be explicit about openBIM elements. We want to see the openBIM data exchanges, formats and applications, related to the outcomes.
- What APIs did you use? (Ex. ECF, Documents API, ESDA API, property exchange API, custom)

Describe Software Ecosystem Map

<table>
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<th>B</th>
<th>I</th>
<th>H</th>
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</thead>
</table>

Describe why openBIM was used in this way.

What objectives or benefits were achieved?

Which version of a standard did you choose, and why?

#### Process Maps (optional)

**Select file**

Use this field to upload process map views (as a single file upload) that show why openBIM was used and where.

**Note:** This field is not required but highly encouraged for added transparency to the submission.

Describe Process Map(s) (optional)

<table>
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Describe why openBIM was used in this way.

What objectives or benefits were achieved?
Upload IFC file(s) or other technical files to support validation of the research results. (Highly Recommended) (optional)

https://

Use your preferred file sharing service to share IFC files for review. (E.g. WeTransfer, Box, Dropbox, Drive, OneDrive, etc.)

*NOTE: For restrictions around access or use of these files by bsi, kindly include a limited use document in the upload that is clearly labelled.

openBIM Supporting Evidence (optional)  
Select file

Provide additional supporting evidence to fully demonstrate the extent of openBIM on the project. (Maximum of 10 pages total.)

openBIM Data Metrics Summary (Highly Recommended) (optional) 
Select file

Highly recommended. Upload/provide metrics on data in your project. How many revisions, how many objects inside IFC, how many BCP topical/issue, how many IFC aspect files during coordination, etc. This summary should give a general idea of scope and scale of use or impact of openBIM.

Lessons Learned (optional)

Describe what was learned through this project experience about openBIM and open environments for data exchange. If you were to apply what you learned to your next project, what would that be? You can also include recommendations for what buildingSMART should consider providing to the industry in the form of reference resources, technical standards or tools.

Save + next  Save + close  Preview  Submit submission

Optional Information

You are invited to submit optional information to help inform ongoing buildingSMART activities around the topic of "Use Cases". Completion of this tab is not required and will not be judged as part of this submission. Refer to the [bsl Use Case Management Tool](https://bsl-usecase-management-tool) activity page.

- [ ] BIM Uses were defined on the project (optional)

- [ ] BIM Uses formed an integral part so how the project was delivered (optional)

- [ ] I agree to be contacted for more information about the project BIM uses outside of this awards program. (Optional)

Save + next  Save + close  Preview  Submit submission
Additional material may be supplied as follows:
1. Ensure the written component of your entry be fully explained within the other tabs; only supporting documentation used as reference should be added here;
2. A minimum of ten (10) images should be uploaded with your entry that best represent the submission;
3. Video content should be not more than 20 minutes in total;
4. Formats accepted are as follows: .pdf, .docx/.doc, .jpg/.jpeg, .png, .mp3/.mp4;
5. Links and externally hosted videos are allowed as attachments.

Be sure to click the “Submit submission” to enter your submission into the competition before the deadline!
Appendix D: Sample Attachment Files
Below are some examples from submissions to the 2019 Awards program. These samples can give ideas on how to support the kinds of attachment documents we are asking you to provide in the submission. Please remember that plagiarism is a serious offence and not tolerated in this program.

Figure 1: BIM Technology Map – Mercedes Autohaus Project, Australia

Project general information

• Project BIM Uses

<table>
<thead>
<tr>
<th>Project BIM use / Description</th>
<th>Stage</th>
<th>Tool</th>
<th>Delivery format</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design Authoring and Drawing Production</td>
<td>Stage 1</td>
<td>ARCH, REVIT, 2D, 3D</td>
<td>PDF, DWG, DGN, DCF</td>
</tr>
<tr>
<td></td>
<td>Stage 2</td>
<td>ARCH, REVIT, 2D, 3D</td>
<td>PDF, DWG, DGN, DCF</td>
</tr>
<tr>
<td>Sun &amp; shade analysis</td>
<td>Stage 1 T1, T2</td>
<td>Revit</td>
<td>DGN, PDF</td>
</tr>
<tr>
<td>Clash Detection</td>
<td>Stage 1 T1, T2, T4</td>
<td>Navisworks</td>
<td>DWG, PDF</td>
</tr>
<tr>
<td></td>
<td>Stage 2 T1, T2, T3</td>
<td>Navisworks</td>
<td>DWG, PDF</td>
</tr>
</tbody>
</table>

Figure 2: Project BIM Uses – Qatar TOD Project, Qatar TOD
Based on initial discussions with the client at the beginning of the project, the BIM Execution Plan mandated a truly model-based methodology for design authoring, where:
- all drawings are to be produced from the model
- annotation / tags on the drawings have to come from the model elements
- schedules need to be model-driven

The client made modelling a contractual obligation and the models liability documents.
Models have since been connected to a central database through dilfus to populate, consolidate and audit the data.

This methodology prepared the project for smooth handovers and an FM-ready and deliverable from day one.

Figure 3: Process Map – Queen’s Wharf Brisbane Project - Australia

25 consultants (about 400 people) provided model-based documentation on the project. This work provided a solid base for all other use cases.

The federated model is in real world coordinates, while export / import between different authoring software is typically based on a local project origin. (PDC note known issues with authoring applications operating in real world coordinates, and “element too far from origin issues”)

Therefore consultants needed to export two versions of all IFC’s, one at real world coordinates, another one at the project origin.

Pending on the software package and model application, the user has the ability to utilize the file best fit for purpose.

Figure 4: IFC coordinate management & interoperability – Queen’s Wharf Brisbane Project - Australia
Model break up and naming strategies

The problem:
Coordination needed to be specific to different design zones and;
There was a need to separate different responsibilities (e.g., restrict access to individual scopes of work for different contractors and different phasings)
Therefore a model break up strategy was necessary, where the overall site and facilities were broken down to different design zones aligning with the client’s breakup strategy.
Consolidated naming conventions for all parties in the delivery team were necessary to make information easily identifiable, avoid conflicts and facilitate fluid collaboration.
Model sizes were also limited to 250 Mb for software usability. Namely to enable models loaded onto tablets for BIM in the field workflows and known Revit stability issues at higher model sizes.

Figure 5: Model break up and naming strategies – Queen’s Wharf Brisbane Project - Australia

Room/space management

A location based database is the starting point for various Deliverables on the project:
- Accommodation schedules
- Door schedules (linked to rooms)
- Room data sheets
- COBie exports
- Future FM uses
In some areas the lead architect, Cotter Parker was responsible for defining the relevant spaces (zones in ArchiCAD) in others, interior designers modelled rooms / spaces in Revit.
The goal was to publish combined COBie exports and other deliverables from various consultants’ models of the same project location, from different e.g., a room data sheet incorporating the room and base build from the lead architect (ArchiCAD), finishes and furniture from interior designers (Revit) and equipment from the MEP engineering trades (Revit).

Figure 6: Room/space management – Queen’s Wharf Brisbane Project - Australia
Figure 7: 3D Coordination – Queen’s Wharf Brisbane Project - Australia

Figure 8: Design Authoring and Briefing – West 65 Project, Serbia
DESIGN
EXISTING CONDITIONS MODELING (ECM)

- For the existing conditions analysis adequate 3D model of terrain, existing facilities and infrastructure was necessary.
- For that purpose Autodesk Infraworks was used to capture 3D model of construction site and it's surroundings.
- Model was refined in Autodesk Civil 3D and using LandXML data it was exported in Autodesk Revit.
- BIM model of Existing utilities and buildings was added in Revit. Additionally, model of excavation masses with different types of soil was also added.
- Finally, complete BIM model was exported in BIM-Manager where all necessary information about Existing Conditions were added.

Figure 9: Existing Conditions Modeling – West 65 Project, Serbia

4 Data Stream Delivery

4.1 Data transfer for all software

Figure 10: Data Stream Delivery – Xiamen Metro Transit Project, China